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THE PROPOSED CONNECTION OF THE RUSSIAN AND INDIAN RAILWAY SYSTEMS*

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The plan to connect the railway systems of Russia with those of British India is one that has appealed strongly to the imagination, on account of the commercial advantages that would be gained and the immense saving of time that would be made in traveling between western Europe and India, the richest asset of the British Empire. Hitherto, however, there have been objections on the part of the British Government, which preferred that India should be kept separate from the Russian Empire and the other nations of Europe that might make use of such through railway system for purposes of military invasion. Now, however, the new entente and friendship with Russia may remove political obstacles that stand in the way of connecting the Indian and Russian railway systems.

There has been no railway progress in any part of the Russian Empire so rapid during the past year as the extension of the Bokhara Railway south to the Oxus River, also known as the Amu-Daria, and eastward along the north bank of this river, which forms the boundary between Russian Turkestan and Afghanistan, to the present terminus at Termez (Fig. 2). This is only about 550 miles from Peshawar, on the Indian side of the famous Khyber Pass, by which Alexander the Great invaded India and which has subsequently been always considered, both in a military and commercial sense, as the gateway to that country. A few more months of construction of the Bokhara Railway eastward to Sarai, above the junction of the Kundus and Oxus Rivers, the immediate new goal of this system, will leave a gap of only about 400 miles between the railway system of the Russian Empire and that of British India. Whether or not the system would be extended through this remaining gap will depend on the attitude of the British Government and on the consummation of some arrangement with the Amir of Afghanistan for the laying down of such a line through the north-eastern corner of His Majesty's hermit country. It is believed that the extension through Afghanistan could very likely be carried out by a separate

* See also the writer's report on "Railway Development in Russian Central Asia," *Commerce Repts.*, April 9, 1917, pp. 103-109, and the passages devoted to the railways and trade routes of India (pp. 73-80), Baluchistan (pp. 475-477), and Afghanistan (pp. 541-544) in the writer's "British India," *Spec. Consular Rept. No. 72*, Bur. of Foreign and Domestic Commerce, Dept. of Commerce, Washington, 1915 (reviewed below under "Geographical Publications").—EDIT. NOTE.

company controlled by Russian and British capitalists, with the Amir himself receiving a large proportion of the stock.

The construction of railways in Russian Turkestan has been steadily proceeding for some years past. First the Central Asiatic Railway, from Krasnovodsk on the east coast of the Caspian Sea to Tashkent in Turkestan, was constructed, with a branch to Kushka, only about 100 miles from Herat in Afghanistan. Then, in the year 1905, Tashkent was connected at Orenburg in southeastern Russia near the Urals with the railway system of European Russia. Finally, dating from July, 1915, the Bokhara Railway, starting from the station Kagan, near the city of Bokhara, on the Central Asiatic Railway, has been extended southward to the Oxus River opposite Afghanistan, and eastward to Termez, the present terminus.

In order to make the last link in the connection of the Russian and Indian railway systems, it will be necessary to cross from the basin of the Oxus to the basin of the Indus; between these two basins the mountain range of the Hindu-Kush presents a barrier which would require considerable engineering skill to overcome. The word "Hindu-Kush" means "Dead Hindu." This name has been given to the range from one of its passes, on which an entire tribe of Hindus perished in an attempt to descend into Turkestan. This mountain range of eternal snows has an extent of 400 miles, with but two passes lower than 12,000 feet; Khawak, 11,640 feet; and Bamian, 11,770 feet. Several of the passes reach an altitude of 19,000 feet, and certain peaks attain 24,000 feet. The adjoining region of the Pamir is indeed often appropriately referred to as the "Roof of the World." Three of the largest empires of the world, the Russian, the British Indian, and the Chinese, as well as the very secluded and comparatively unknown nation of Afghanistan, meet near this point.

The engineering problem of constructing a railway through the Hindu-Kush Mountains from Turkestan to India, will, in the opinion of Russian engineers who have made surveys over this part of the route, find a comparatively easy solution by the boring of a tunnel under the divide separating the headwaters of the Kundus River, flowing towards the Oxus River and Turkestan, from the headwaters of the Kabul River, flowing eastward to the Indus, which drains all of northwestern India. Such a tunnel would, it is estimated, be about 13 miles long, and require excavating through granite rock. Except for the 13 miles of tunnel, the railway construction would be comparatively easy, as it would follow the valley of the Kundus on one side of the divide and the valley of the Kabul on the other side. The average cost per mile of the railway, including the tunnel construction, would, it is estimated, be about \$100,000; that is, from the mouth of the Kundus to Peshawar in India, a distance of about 400 miles, the total cost would be about \$40,000,000.

In the event of the construction of this railway through the Hindu-Kush the distance between western Europe, starting from the Hook of Holland,

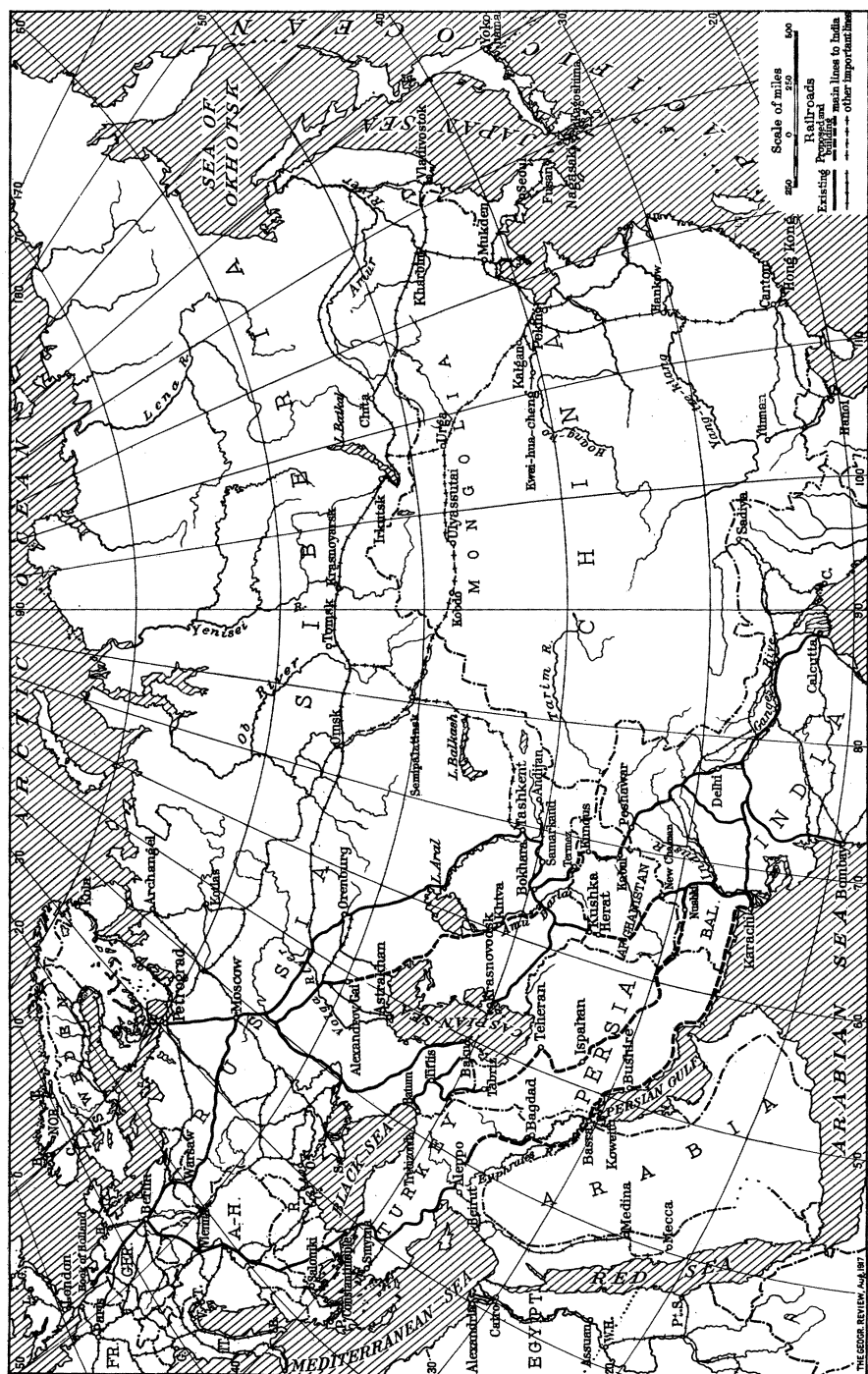


FIG. 1.—Outline map of Eurasia showing the proposed connections between the railway systems of Europe and of India, together with the main lines of eastern Asia. Scale, 1:57,000,000.

reached by fast steamer from England, to the Indian capital at Delhi, would be as follows (see Fig. 1) :

Hook of Holland-Berlin-Warsaw-Moscow.....	1,836 miles
Moscow-Orenburg-Tashkent	2,082 "
Tashkent-Kagan-Mouth of Kundus River.....	750 "
Mouth of Kundus River-Peshawar.....	400 "
Peshawar-Delhi	627 "
Total (in English miles).....	5,695 miles

It may be mentioned that a new railway into Russian Turkestan is now under consideration, via Alexandrov Gai in southeastern Russia and skirting the northeastern shore of the Caspian Sea to Khiva and Bokhara. This railway, if constructed, would make a saving in distance of over 800 miles in the proposed route between Russia and India via the Hindu-Kush.

The Bokhara Railway is owned by Russian capitalists, who have enjoyed special support from the Russian Government and from the Emir of Bokhara, through whose territories the railway has thus far been chiefly operated. It is understood that the Emir of Bokhara has received a bonus of one-third the entire stock of the railway system, but in return he has not only provided the right of way but has also given to the system large tracts of land which would require only a comparatively small expenditure for irrigation from the Oxus River to become one of the finest cotton-growing regions in the world. Interests in control of the Bokhara Railway are giving their attention not only to railway building but also to the development of the country by irrigation and the establishment of industries along the route. Not only do they desire a connection with British India, but they are also already making surveys for possible extension northeast toward the rich gold-mining districts of Mongolia, and for possible connection with the Trans-Siberian Railway at some point in central Siberia.

The great commercial advantages which would result from a connection of the railways of British India with those of Europe must be readily apparent. Although the Indian railway systems are completely isolated from those of other countries, yet they make an average net annual profit of about 7 per cent on their capital. Altogether they have an extent of about 35,000 miles, and much new railway building is planned for the future. If these railways were united with those of Europe, they might take care of an immense through traffic which now of necessity goes by sea via the Suez Canal. Furthermore there should be a great trade developed between Russia and India; for instance, Russia is an immense consumer and India is an immense producer of tea.

The great progress of Russian Turkestan in cotton-growing has excited special attention during the present war, for Russia, owing to the difficulties of securing sufficient cotton from America, through the closing of Baltic Sea ports and the Dardanelles, has been relying more and more on the production in Turkestan, which is increasing heavily each year. Experts in the

Russian cotton trade believe that within ten years Turkestan will produce all the cotton Russia needs, so that no more need be imported from America. There is an extensive movement now for the construction of mills for making cottonseed oil; and it is probable that many textile mills will be erected within the near future, so that Central Asia can produce its own piece goods. In India a beginning has been made in the use of cottonseed oil as a substitute for *ghee*, the native liquified butter which is the chief fat food of millions of her people. It is probable that the immense amount of cottonseed oil which might be produced in Turkestan could be marketed to advantage not only locally but also in British India, if there were railway connections. The proposed railway connection via the Hindu-Kush would also tap Afghanistan, which is a great sheep and fruit country and a large consumer of cotton piece goods, hardware, etc. At present the entire foreign business of Afghanistan goes by caravan routes, the most important via the Khyber Pass. The heavy cost of transportation has so far made the trade of Afghanistan comparatively limited.

A railway connection between India and Europe, say through the Hindu-Kush, would make possible a fast mail service between London and Delhi in six days instead of seventeen days, as at present via the Suez Canal. The cost of the passenger trip by railroad to India would probably be only about half as great as by the present roundabout steamship service. To reduce the time of travel between England and India to one-third of what it is now would prove of incalculable advantage in many ways, and this result would be achieved by the completion of such connections as have been described above.

There is at present in Russia a great awakening to the necessity of expansion in the country's railway facilities, not only to remedy military weaknesses as shown by the war, but also to take advantage of the immense commercial resources of the vast areas of her territory, which, if opened up by adequate railway systems, would experience marvelous development. Not only in Russian Turkestan, but in Persia and Mongolia, important plans have been formed for railway construction to extend the commercial outposts of the Russian Empire.

In addition to the route between Turkestan and India through the Hindu-Kush Mountains, there are also other possible routes to connect India with Europe: (1) by way of Turkey, Persia, and Baluchistan; (2) by way of the Caucasus district of Russia, Persia, and Baluchistan; and (3) by way of Afghanistan, by a line running from Kushka to Herat and then on to Kandahar, only about 80 miles distant from New Chaman in Baluchistan, which is the terminus in Baluchistan of the British Indian railway system.

Until the outbreak of the present war, the two routes by way of Persia had been looked on by the British authorities with more favor than the two possible routes through Russian Turkestan. Of the two Trans-Persian

routes, the first might join the Bagdad Railway from Constantinople at Bagdad, and follow the Euphrates River south to the Persian Gulf at Basra, thence eastward through Bushire and along the southern coast of

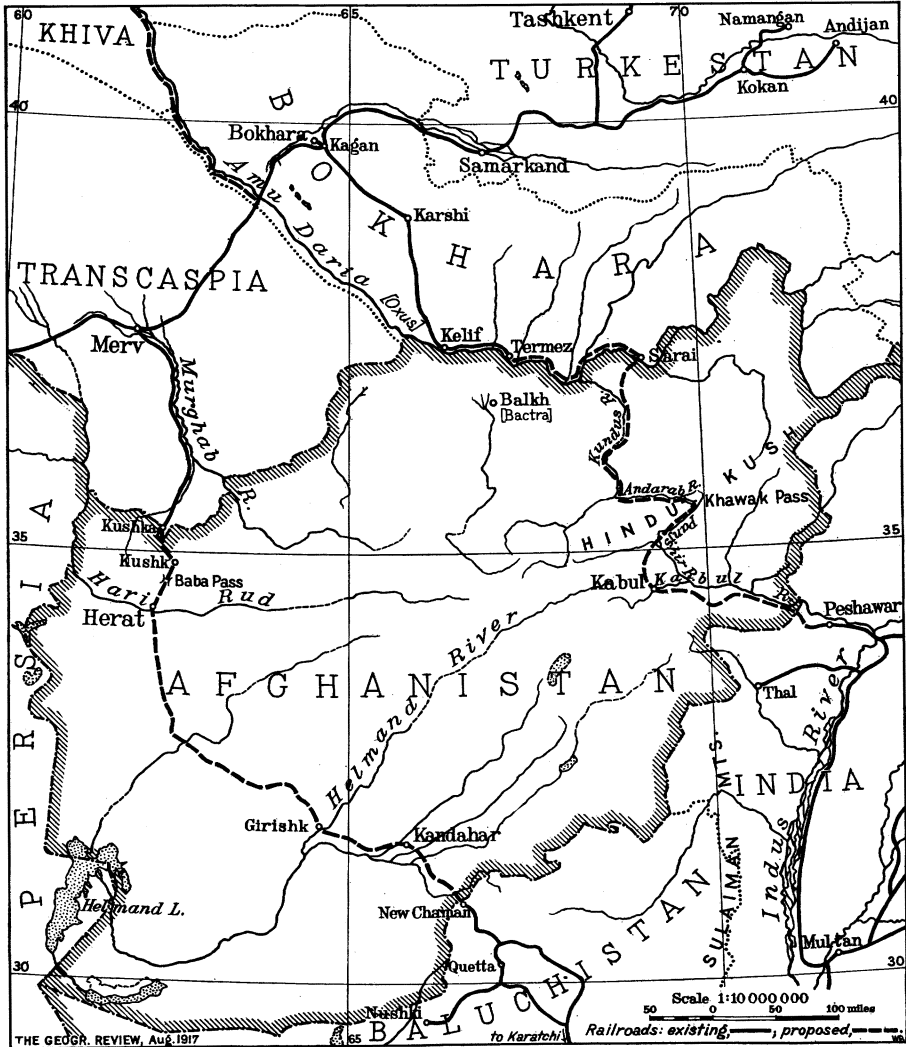


FIG. 2—Outline map showing in greater detail the proposed connections between the Russian and the Indian railway systems through Afghanistan. Scale, 1:10,000,000.

Baluchistan to Karachi, the great grain and cotton exporting port near the mouth of the Indus in northwestern India. The second system might extend from Tiflis in Trans-Caucasia, through Tabriz, Kazvin, Teheran, and Ispahan in Persia to Nushki in Baluchistan, where it would join the British Indian railways. Any proposed connection with the Bagdad Railway

would be dependent upon the outcome of the present war, but even if the present war is entirely successful from the standpoint of the Allies, nevertheless there might, from a British standpoint, be a doubt as to the advisability of making a railway connection which might be of more benefit to Germany than to England. There might, on the other hand, be a disposition to encourage construction which would link the Indian with the Russian system by way of the Caucasus railway. It may be mentioned in this connection that a Russian railway from the Araxes River at the frontier of Trans-Caucasia to Tabriz in northwestern Persia was completed¹ in March, 1916, a distance of about 150 miles. The writer was a passenger on the first train that entered the city of Tabriz. There was great excitement in that city when the train arrived, the locomotives being gaily decorated with Russian and Persian flags. This is the first railway in Persia. It is of the same gauge as the Russian railways, so that there is no reason why trains cannot now be run all the way from Petrograd to Tabriz. At present the line is used chiefly for military purposes, but later it will be used for commerce. This line may eventually be pushed on to Teheran, and perhaps later follow the line of the Indo-European telegraph system toward the sphere of British influence in southern Persia, and it would then rest with the British Government whether or not the Baluchistan railway should be extended to southern Persia to meet it. Through central and southern Persia, however, and through western Baluchistan, it would be necessary to traverse a vast tract of country of a desert-like character with little opportunity for profitable business except on through freights from India to Europe. There is no doubt, however, that from the Caucasus district, at least as far as Teheran, such a railway, traversing the richest part of Persia, would be of great local commercial importance and make an outlet for a large Persian trade now conducted under circumstances of considerable delay and difficulty. Before the war most of the trade of Tabriz with the outside world was by caravan route via Trebizond in Asia Minor on the Black Sea.

The proposed route across Afghanistan by way of Kushka, Herat, Kandahar, and New Chaman would be only 475 miles in length. New Chaman in Baluchistan is close to the boundary of Afghanistan. This town is the most westerly railway outpost of the Northwestern Railway of British India and was built rather for military than commercial purposes. It belongs to the government of India. There is in New Chaman a supply of railway equipment adequate to the immediate construction of a line as far as Kandahar, in the event of any disturbance of political relations with Afghanistan. Several years ago the writer was in Baluchistan and traveled on the railway to New Chaman. The railway traverses the country inhabited by nomadic tribes previously considered barbarous. Although the

¹ See report by the writer on "Opening of the First Railway in Persia," *Commerce Repts.*, April 28, 1916, pp. 372-373 (abstracted in the *Geogr. Rev.*, Vol. 2, p. 156).—EDIT. NOTE.

line is always guarded by a few troops, yet such protection is becoming less and less necessary, and it has been noteworthy that the railways have had a civilizing effect on the inhabitants, who, instead of pursuing the life of bandits and robbing and often murdering travelers as hitherto, now employ themselves in farming and other peaceful pursuits. A great deal of fruit from Afghanistan, chiefly melons and grapes, is shipped over this railway to the larger cities of British India, but, owing to the difficulty in transportation in Afghanistan, the fruit is often spoiled before it can get to the railway in Baluchistan.

Taking the Hook of Holland and Delhi as end points, the various proposed routes compare as follows as to distance:

via Berlin-Vienna-Constantinople-Bagdad-Basra-Bushire-Karachi	5,745 miles
via Moscow-Baku-Tiflis-Tabriz-Teheran-Ispahan-Nushki	5,550 "
via Moscow-Alexandrov Gai-Khiva-Bokhara-Termes-Kabul-Peshawar	4,918 "
via Moscow-Orenburg-Tashkent-Bokhara-Kushka-Kandahar-New Chaman..	5,295 "

Besides the fact that the route through the Hindu-Kush appears the shortest, it would be superior to all the others at the present time from a topographical point of view. It would lie between the immense valley of the Ganges and the Indus on the east and low-lying Europe on the west, having only one great ascent, namely through the Hindu-Kush. For the remainder of the distance it would pass along the plains of India and Turkestan and through the level part of Europe. The routes through Persia and through Turkey would meet entirely different conditions. Here it would be necessary to cut through many ranges of hills, a work which would increase not only the first cost of the railway, but also its operating expense, owing to the considerable grades to be overcome. In addition to this, great difficulties would be encountered, both in construction and maintenance, in the desert regions with their ceaselessly drifting sands, a menace to the roadbeds for hundreds of miles. The other route from Delhi, to New Chaman, Kandahar, Herat, and Kushka, would present more difficult positions than the route through the Hindu-Kush. On its course there would be two mountain passes of considerable height, at Herat and at Kushka.

The way through the Hindu-Kush presents also great advantages over other routes with respect to water supply. Along this entire route rivers flow with abundance of water, which not only would meet the needs of the railway but would be a source of energy for hydro-electric stations. Such stations would facilitate the construction of tunnels and provide electrical traction on the hilly part of the route from the junction of the Andarab with the Kundus, as far as the junction of the Gharband with the Pianjsher. Both proposed routes through Persia contrast unfavorably with this as regards available water supply, as they pass through waterless deserts. The northern Persian route would traverse a vast salt desert, while the southern would go through sterile and almost uninhabited country just north of the Persian Gulf. Because of such topographical difficulties

the cost of construction per mile of a Trans-Persian railway would in no way prove less expensive than one through the Hindu-Kush. The northern Trans-Persian railway would probably cost at least \$170,000,000, and the southern probably somewhat more. The Kushka-Herat-Kandahar-New Chaman route would probably cost somewhat less than the route through the Hindu-Kush but might have offsetting disadvantages, owing to the great fanatical opposition of the Afghans to the presence of Europeans. In this country it is even a capital offense to embrace the Christian religion.

It is doubtful if the British Government will in the future feel the necessity of keeping Afghanistan undeveloped and uncivilized, merely for the purpose of providing a buffer state between Russia and India. With the exception of Tibet, Afghanistan is at present the least known country in the world and is a barrier to commercial intercourse between the world's two greatest empires. In the same way that the new conditions arising from the war have little by little removed the special political objections to a tunnel under the English Channel between England and France, so also political opposition to connecting the British and Russian railway systems seems likely to disappear. From a strategical standpoint a railway through the Hindu-Kush, with its proposed tunnel 13 miles in length, would seem easy to defend in case of war. The Hindu-Kush mountain chain would be impassable during the greater part of the year, except for the tunnel, which could be readily closed in case of war.

The idea of constructing an Indo-European railway system was first seriously proposed in the year 1873, when the famous engineer, Ferdinand de Lesseps, wrote a letter to Count Ignatieff, the Russian Ambassador at Constantinople, which contained the following words:

In my opinion the construction of a quick means of communication between the West and the Far East through Central Asia will, in an extraordinary degree, increase the facilities of commerce by the sea routes.

I foresee that the realization of this great project, for whatever reasons it be undertaken, will cause Anglo-Russian antagonism to vanish, an antagonism which has been provoked by the position of affairs in the countries of Central Asia. Indeed, twenty years ago, I foresaw similarly that the construction of the Suez Canal would result in the disappearance of antagonism between France and England, an antagonism which had existed from the beginning of the present century on account of the Egyptian question.

As soon as Central Asiatic territory has been intersected by railways, it will no longer act as a hindrance to the spread of European civilization. The ground for mutual distrust between the rival empires of Russia and England will disappear, a distrust which always assumes a marked character as soon as one of these empires tries with armed force to restore order, when it has been broken on these frontiers by semi-barbaric tribes.

The route of the Indo-European railway proposed by De Lesseps was from Orenburg via Samarkand to Peshawar, there to form a junction with the Indian railways. On receiving the full support of Ignatieff, authorized by the Russian Government, De Lesseps set out for Paris. He devoted himself to organizing an expedition for the purpose of surveying the proposed route. The expedition which he had organized went to India, but, on

account of the opposition of the English authorities, was obliged to return from that country without setting to work.

The first indication that the British Government favored the construction of a railway connecting Europe with India appeared in a speech of Sir Edward Grey in the House of Commons on July 11, 1912, when he said :

From the Government's point of view, it would be unwise to oppose the construction of a railway, which in any case, sooner or later, must be built. On the contrary, in order to safeguard our own interests, England is bound unremittingly to take part in the construction of the Trans-Persian line.

It will be noticed from this speech that Sir Edward Grey endorsed the proposal for a Trans-Persian railway. In view of the imperiled position of British influence in Persia and the fact that Turkey is now an ally of Germany, it is perhaps likely that the British Foreign Office would oppose a Trans-Persian railway to India, unless the outcome of the present war should remove all doubts as to whether such a railway would subserve British interests instead of those of the Central Powers. Had such a railway been in existence when the war started it would have facilitated a German-Turkish invasion of India by way of Baluchistan. On the other hand, a railway through the Hindu-Kush would have facilitated the co-operation of India and Russia in the present war.

Mongolia also is likely to be an objective for Russian railway extension and in the future the network of Central Asian railways will probably be connected in the west with Europe and in the south with India. Not only is it likely that the Bokhara railway system will be extended toward Mongolia as well as to India, but it seems also probable that a railway will be built from the Trans-Siberian line to Urga, the capital of Mongolia, whence a line might then be constructed across the Gobi Desert to Kwei-hua-cheng, from which place a line is now being completed to Kalgan to join the Peking-Kalgan railway. Then a branch line may be thrown out west from Urga to Ulyassutai, Kobdo, and Semipalatinsk, which would connect eventually with the Samarkand-Bokhara district railway system. When all this is accomplished Peking would be brought four days nearer to London, and Mongolia would be well under the civilizing influences of western Europe. The wealth of its rich northern portion would be developed, and its fertile valleys put under the plough and form another granary for the world. With the Russian railway systems linked with India's by the proposed extension through the Hindu-Kush, India would then have the opportunity of railway communication, roundabout, to be sure, not only with Mongolia, but also with China, should the railway be built across the Gobi Desert.

In 1914 two agreements were drawn up between Russia and Mongolia, one authorizing a concession to the Russian Central Postal and Telegraph Department to construct a telegraph line into Mongolia, and the other allowing for a co-operation between Russia and Mongolia for the construc-

tion of railways to serve the two countries. The agreement stipulates that, although the Mongolian Government shall have the right to construct a useful railroad with its own means, nevertheless, "as regards the granting of railroad concessions to anyone, the Mongolian Government shall, by virtue of the relations of close friendship with the neighboring great Russian nation, previous to granting the concession, enter into conference with the Imperial Russian Government and consult with it as to whether the projected railroad is not injurious to Russia from an economic and strategic standpoint."

The closing of gaps between the Russian and Indian systems ought to benefit America's own trade relations with India, unless customs duties had to be paid in Russia for transit of goods to and from India and America. The time saved by transit of goods over this route, compared with transportation by sea, should be enormous. A railway service between Europe and India would give great opportunity for a fast parcel post service; up to the present the United States has not arranged parcel post service either with Russia or with India. The recent extension of the Russian railway system to Kola in northern Lapland,² and also the improvement in railway service to Archangel, should make it possible in connection with the proposed extension of the Russian railway system to British India, to ship goods all the way from New York to Arctic Ocean ports in Russia, and then by rail to British India, with no necessity for transfer of the goods either at London or at ports in Germany. As Kola is free of ice all the year round, it could be used for trade even in the winter, but in summer Archangel would be more advantageous, as much distance would be saved in railway haul. Indeed, by making use of steamers and barges on the Northern Dvina and Volga Rivers, with connecting canal, goods could be brought by water all the way to the Caspian Sea and across it to Turkestan, where the present and proposed railway systems could take them to British India. Owing to the high northerly position of Kola and also Archangel, the route to New York is not nearly so long as it looks on the maps in Mercator's projection generally in use for the representation of world routes. In the future America, instead of doing business with Russia or adjacent countries by way of England or Germany and through the Baltic Sea, seems likely to prefer the direct routes to northern Russia. The necessities of the present war, which have compelled the use of Russia's Arctic ports, have also caused their improvement and their better connection with the rest of the country, so that these new routes of commerce may become permanent.

There is no part of the world where railways are so capable of enormous commercial and industrial development as in Russia. The railway policy of the Russian Government is becoming more and more progressive, and as a result peaceful penetration of some of the richest and most secluded portions of the world will proceed rapidly during the years to come.

² See "Russia's War-Time Outlets to the Sea," *Geogr. Rev.*, Vol. 1, 1916, pp. 128-132, with map.—EDIT. NOTE.